

IN THE CLAIMS

Please delete claim 29 and amend claims 20-27 as follows:

1-18 (cancelled)

19. (previously presented) A ferrohydrostatic separation method comprising the steps of:

providing a ferrofluid;

controlling the density of the ferrofluid to a substantially constant value by means of a vertically orientated magnetic field generated by a C-dipole, an open dipole (O-dipole), or split pair electromagnet or permanent magnet;

introducing materials of different densities into the ferrofluid; and

separately recovering materials which sink and float in the ferrofluid.

20. (currently amended) The method according to claim 19, wherein the vertically orientated magnetic field is generated by a C-dipole and a required vertically orientated magnetic field pattern is achieved by ~~appropriate design of the~~ means of magnetizing coils on upper and lower legs of the C-dipole.

21. (currently amended) The method according to claim 19, wherein the vertically orientated magnetic field is generated by a C-dipole and a required vertically orientated magnetic field pattern is achieved by controlling the relative polarity of electrical current flowing through ~~[[the]]~~ magnetizing coils on upper and lower legs of the C-dipole.

22. (currently amended) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a C-dipole ~~and a required vertically orientated magnetic field pattern is achieved by appropriate shaping of the C-dipole tips~~ having tips which face one another, the tips being shaped to produce a required vertically orientated magnetic field pattern.

23. (currently amended) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a split pair electromagnet and a required vertically orientated magnetic field pattern is achieved by ~~appropriate design of the~~ means of magnetizing coils on upper and lower members of the split pair.

24. (currently amended) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a split pair electromagnet and a required vertically orientated

magnetic field pattern is achieved by controlling the relative polarity of electrical current flowing through ~~[[the]]~~ magnetizing coils on upper and lower members of the split pair.

25. (currently amended) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a split pair electromagnet ~~and a required vertically orientated magnetic field pattern is achieved by appropriate shaping of the tips of upper and lower members of the split pair~~ having upper and lower members having tips facing one another, the tips being shaped to produce a required vertically oriented magnetic field pattern.

26. (currently amended) The method according to claim 19 wherein the vertically orientated magnetic field is generated by an O-dipole electromagnet ~~[[and]]~~ having a steel core shaped to produce a required vertically orientated magnetic field pattern ~~is achieved by appropriate shaping of the steel core of the O-dipole electromagnet.~~

27. (currently amended) The method according to claim 19 wherein the vertically orientated magnetic field is generated by an O-dipole electromagnet and a required vertically orientated magnetic field pattern is achieved by ~~appropriate design of the~~ means of a magnetizing coil of the electromagnet.

28. (previously presented) The method according to claim 19 wherein a required vertically orientated magnetic field pattern is achieved with the provision of a substantially constant magnetic field gradient.

29. (withdrawn) A ferrohydrostatic separation apparatus for separating materials having different densities, the apparatus including a separation chamber for accommodating a ferrofluid into which the materials are introduced, and a C-dipole, O-dipole or split pair magnet adjacent the chamber for generating a magnetic field to control the apparent density of the ferrofluid to a substantially constant value.